

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for generating an electronic version of a document, the method comprising:

receiving a plurality of digital, electronic images of the document;

generating a corrected image from each received image;

deriving one or more motion parameters for each pair of consecutive, corrected images, the motion parameters indicating the relative motion between the consecutive, corrected images, the motion parameters are derived by minimizing the sum of squares differences between each pair of consecutive images;

aligning each image relative to the previous images based on the derived motion parameters; and

blending each image into the previous images so as to produce the electronic version of the document ; [[.]]

wherein the sum of squares differences is substantially given by the following equation:

$$E = \sum_{i,j} e^2(i, j)$$

wherein, $e(i, j) = I(i, j) - I'(i', j')$; and wherein (i, j) and (i', j') are corresponding pixel locations in a previous image and a current image, respectfully.

Claim 2 (original): The method of claim 1 wherein the digital, electronic images are produced by a digital video camera.

Claim 3 (previously presented): The method of claim 1 wherein two or more series of digital, electronic images of the document are received, whereby each series of images corresponds to a respective sweep of the document by the video camera, the method further comprising:

merging the images from each series together to form a composite, mosaic image of the respective sweeps; and

merging consecutive mosaic sweep images together to form the electronic version of the document.

Claim 4 (cancelled)

Claim 5 (previously presented): The method of claim 1 wherein:
the corrected image frames include a plurality of pixels; and
the sum of squares differences is applied on a pixel-by-pixel basis.

Claim 6 (cancelled):

Claim 7 (currently amended): The method of claim 1 [[6]] wherein the motion model has eight motion parameters, $m_0, m_1, m_2, m_3, m_4, m_5, m_6$ and m_7 defined by:

$$i' = (m_0 + m_2 i + m_3 j) / (m_6 + m_7 j + 1); \text{ and}$$

$$j' = (m_1 + m_4 i + m_5 j) / (m_6 + m_7 j + 1).$$

Claim 8 (previously presented): The method of claim 7 further comprising subsampling the received images, wherein:

$$m_2 = m_5 = 1; \text{ and}$$

$$m_3 = m_4 = m_6 = m_7 = 0.$$

Claim 9 (previously presented): The method of claim 8 wherein subsampling the received images comprises discarding one out of two pixels in both the horizontal and vertical directions from each received image.

Claim 10 (previously presented): The method of claim 7 wherein:

$$m_5 = m_2;$$

$$m_4 = m_3; \text{ and}$$

$$m_6 = m_7 = 0.$$

Claim 11 (previously presented): The method of claim 7 wherein:
the received image frames have YUV color space components, wherein Y corresponds to luminance and U and V correspond to chrominance;
the motion parameters are derived only for the Y component of the corrected images; and
the derived motion parameters for the Y component are scaled for U and V components.

Claim 12 (currently amended): The method of claim 1 [[6]] further comprising performing a spline-based registration on consecutive mosaic sweep images.

Claim 13 (previously presented): The method of claim 2 wherein the generating a corrected image comprises:

building at least one look-up table having, for each pixel of the received image frames, a corresponding entry containing a correction factor; and
applying the corresponding correction factors to the pixels of the received image frames to produce the corrected images.

Claim 14 (previously presented): The method of claim 9 wherein the correction factors stored at the at least one look-up table correct for off-axis illumination and radial lens distortion.

Claims 15-24 (cancelled)

Claim 25 (previously presented): A method for generating an electronic version of a document, the method comprising:

receiving a plurality of digital, electronic images of the document, said electronic images being produced by a digital video camera;

generating a corrected image from each received image, said generating comprising building at least one look-up table having, for each pixel of the received image frames, a corresponding entry containing a correction factor; and

applying the corresponding correction factors to the pixels of the received image frames to produce the corrected images;

deriving one or more motion parameters for each pair of consecutive, corrected images, the motion parameters indicating the relative motion between the consecutive, corrected images;

aligning each image relative to the previous images based on the derived motion parameters; and

blending each image into the previous images so as to produce the electronic version of the document.

Claim 26 (previously presented): The method of claim 25 wherein two or more series of digital, electronic images of the document are received, whereby each series of images corresponds to a respective sweep of the document by the video camera, the method further comprising:

merging the images from each series together to form a composite, mosaic image of the respective sweeps; and

merging consecutive mosaic sweep images together to form the electronic version of the document.

Claim 27 (previously presented): The method of claim 26 wherein the step of deriving the one or more motion parameters comprises minimizing a sum of squares differences between each pair of consecutive images.

Claim 28 (previously presented): The method of claim 27 wherein the corrected image frames include a plurality of pixels, and the sum of squares differences is applied on a pixel-by-pixel basis.

Claim 29 (previously presented): The method of claim 28 wherein the sum of squares differences is substantially given by the following equation:

$$E = \sum_{i,j} e^2(i, j)$$

wherein $e(i, j) = I(i, j) - I'(i', j')$; and wherein (i, j) and (i', j') are corresponding pixel locations in a previous image and a current image, respectfully.

Claim 30 (previously presented): The method of claim 29 wherein the motion model has eight motion parameters, $m_0, m_1, m_2, m_3, m_4, m_5, m_6$ and m_7 defined by:

$$i' = (m_0 + m_2 i + m_3 j) / (m_6 + m_7 + 1); \text{ and}$$

$$j' = (m_1 + m_4 i + m_5 j) / (m_6 + m_7 + 1).$$

Claim 31 (previously presented): The method of claim 30 further comprising subsampling the received images wherein m_1 and m_5 are equal to one and m_3, m_4, m_6 , and m_7 are equal to zero.

Claim 32 (previously presented): The method of claim 31 wherein the step of subsampling the received images comprised the step of discarding one out of two pixels in both the horizontal and vertical directions from each received image.

Claim 33 (previously presented) The method of claim 32 wherein the correction factors stored at the at least one look-up table correct for off-axis illumination and radial lens distortion.

Claim 34 (previously presented): The method of claim 30 wherein:

m_2 equals m_5 ;

m_3 equals $-m_4$; and

m_6 and m_7 are equal to zero.

Claim 35 (previously presented): The method of claim 30 wherein:

the received image frames have YUV color space components, where Y corresponds to luminance and U and V correspond to chrominance;

the motion parameters are derived only for the Y component of the corrected images; and

the derived motion parameters for the Y component are scaled for U and V components.

Claim 36 (previously presented): The method of claim 29 further comprising performing a spline-based registration on consecutive mosaic sweep images.